

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicants : Klaus KULPER et al.  
Serial No. : 10/590,124  
Filed : April 20, 2007  
For : HIGHLY ABRASIONPROOF STRIP FOR  
ARMOURING CABLE HARNESSSES IN MOTORCARS  
Art Unit : 1787  
Examiner : Cheng Yuan HUANG

---

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**DECLARATION UNDER 37 CFR §1.131**

SIR:

We, the undersigned, citizens of Germany, hereby declare as follows:

1. We are the joint inventors of the subject matter disclosed and claimed in the above-identified patent application.
2. We completed the present invention in Germany prior to February 17, 2004.
3. To establish the date of completion of the invention claimed in this application, we submit a true and correct reproduction of the Microsoft® Word document having the German-language title "Beschreibung Abriebschutz" (hereinafter "the Document") as Exhibit A. The English-language translation of the German-language title of the Document is "Description

Abrasion Protection". Since the Document is written in the German language, we also submit a certified English-language translation of the Document (hereinafter "the Translated Document") as Exhibit B.

4. To establish the date that the Document was prepared or at least last modified, we submit a print out image (hereinafter "the Print Out Image") representing a print screen of the electronic file folder (hereinafter "the File Folder") having the German-language title "Hochabriebfest Supersleeve" as Exhibit C. The English-language translation of the German-language title for the File Folder is "High Abrasion Solid Supersleeve". The File Folder and the documents shown to be located in the File Folder are stored in the electronic directory (hereinafter "the Directory") belonging to joint inventor Andreas Wahlers as evidenced by the term "Wahlers" in the upper most header at the top of the Print Out Image that reads:

"\\HAMV04\Wahlers\Eigene Dateien\I I -Patent\Hochabriebfest Supersleeve".

5. From the Print Out Image of the File Folder within the Directory belonging to joint inventor Andreas Wahlers, it can be seen that the Document is located within the File Folder and is stored within the Directory belonging to joint inventor Andreas Wahlers as shown at the third uppermost highlighted document located within the File Folder and entitled "Beschreibung Abriebschutz.doc". As seen in the Print Out Image, the Document, that is located and stored within the File Folder and Directory belonging to joint inventor Andreas Wahlers and entitled "Beschreibung Abriebschutz.doc", was last modified or stored on February 13, 2004.

6. From the Document, that is located within the File Folder and stored within the Directory belonging to the joint inventor Andreas Wahlers, it can be seen that the Document is addressed to "Klaus," referring to joint inventor Klaus Kulper.

7. From the Document and Translated Document, it can be seen that the third figure at the bottom of page 1 of the Document and Translated Document discloses a three layered backing made of outer layers A and B with a functional layer C located between the outer layers A and B. Additionally, the Document discloses a backing made of two outer layers A and B with a functional layer C located between the outer layers A and B and adhesive coats located between the outer layer A and the functional layer C and between the outer layer B and the functional layer C (see the first and second figures on page 1 of the Document and Translated Document).

8. Fig. 3 of the present application discloses a structure of an adhesive tape having outer layers A (see reference number 1) and B (see reference number 2) and an interlayer C (see reference number 3) which is located between the outer layers A and B as disclosed in the third figure on page 1 of the Document and Translated Document. Thus, the third figure on page 1 of the Document and Translated Document discloses the structure as shown in Fig. 3 of the present application.

9. The presently claimed invention of the present application is directed to a backing with a first outer layer A having a first side, wherein the first side of the first outer layer A is connected to a separate layer C over an entire area of the first side of the first outer layer A, wherein the layer C is firmly connected on an open side to a separate second outer layer B over

an entire area of a first side of the second outer layer B as disclosed in the third figure on page 1 of the Document and Translated Document. Thus, the third figure on page 1 of the Document and Translated Document is an embodiment of the presently claimed invention having outer layers A and B and a separate layer C.

10. From the Document and Translated Document, it can be seen that the fourth table at the bottom of page 2 of the Document and Translated Document labeled "Overview of abrasion-resistant samples" discloses experimental data for backings having outer layers A and B made of 125 g woven polyester (hereinafter "PES") fabric and a functional layer made of Malivlies (see Sample 5), spunbonded (see Sample 6), airtight PES (see Sample 7), Multiknit (see Sample 8) or PES loop pile (see Sample 9). Example 4 of the Document and Translated Document discloses individual experimental data for outer layers A and B made of polyester<sub>125</sub> (hereinafter "PES<sub>125</sub>") as shown in Sample 2 of Example 4 on page 2 of the Document and Translated Document and for a functional layer C made of PES<sub>125</sub> airtight as shown in Sample 6 of Example 4 on the page 2 of the Document and Translated Document.

11. The presently claimed invention of the present invention has outer layers A and B composed of a velour, scrim, woven fabric or formed-loop knit and layer C being composed of a textile having an open but stable three-dimensional structure. The present specification discloses that interlayer C may be made of three-dimensional non-woven structures of Multiknit as disclosed in the fourth table on page 2 of the Document and Translated Document (see paragraphs [0027], [0028], [0031] and [0045] of US Patent Publication No. 2007/0237936 A1 for the present application). The present specification discloses that outer layers A and B may be made of polyesters and woven filament fabrics of polyester as disclosed in Example 4 and the

last table on page 2 of the Document and Translated Document (see paragraphs [6048] and [6059] of US Patent Publication No. 2007/0237936 A1 for the present application).

12. From the Document, Translated Document and Print Out Image, it can be seen that the invention claimed in the above-identified application was made prior to February 17, 2004. Embodiments falling within the instant claims are shown in the Document and the results of successful tests showing these embodiments function as adhesive tapes are reported therein, and the Document was stored or last modified on February 13, 2004.

13. We further declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and that the foregoing statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Dated: March 14<sup>th</sup>, 2004

By

Klaus Küpper

Dated: March 15<sup>th</sup>

By

Matthias Von Samson-Himmelsfjerna

Dated: March 16<sup>th</sup>

By

Andreas Wahlers

**EXHIBIT A**

**TO RULE 131 DECLARATION  
OF THE INVENTORS**

**KULPER ET AL.**  
**USSN 10/590,124**

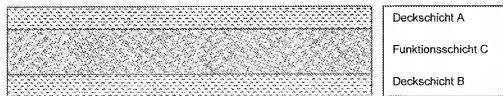
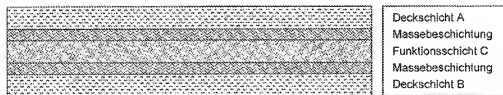
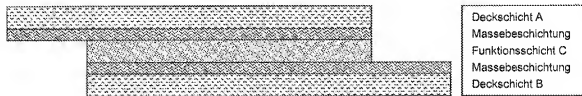
Hallo Klaus,

unten habe ich einige Beispiele aufgearbeitet, die deutlich zeigen, daß es im Schichtaufbau nicht nur zur Addition der Abriebswerte kommt, sondern deutlich mehr ist. Als Negativbeispiel ist die reine Kaschierlösung mit 30g Masse (3) gezeigt, diese nimmt kaum Energie beim Abrieb auf, siehe Vergleich (3) und (4). Betrachtet man den Effekt der Masse, so erhält man beim 4fachen Masseauftrag den 20 bis 40fachen Effekt beim Abrieb. Betrachtungen der Funktionsschicht und eine Übersicht der Möglichkeiten sind in der Tabelle unten zusammengestellt. Schau mal drauf, ob es nicht zu detailliert ist.

Wir sollten Montag noch kurz schauen, ob alle Fälle gut abgedeckt sind.

#### Aufbau des Polyestergewebes:

Das Polyestergewebe ist aus standardmäßig verfügbaren Filamenten der Stärke 167 dtex aufgebaut. Die Konstruktion besteht aus 45 Fäden pro cm in Kettrichtung und 25 Fäden pro cm in Schußrichtung, dabei entsteht ein Gewebe mit 125 g Flächengewicht und 0,2 bis 0,25 mm Dicke. Die Höchstzugkräfte in Kettrichtung erreichen 220 N/cm und in Schußrichtung 170 N/cm bei 32% Reißdehnung in der Kette und 23% im Schuß.



Beispiel 1		Abrieb 7 N Hübe	Abrieb 10 N Hübe	Abrieb 7 N Hübe	Abrieb 10 N Hübe
1	PES125 / 60g Masse	1800	880	--	--
1	PES125 / 60g Masse	1800	880	--	--
2	PES125 / 120g Masse / PES125	--	--	12000	5090
Summe		3600	1760	12000	5090

Beispiel 2		Abrieb 7 N Hübe	Abrieb 10 N Hübe	Abrieb 7 N Hübe	Abrieb 10 N Hübe
4	PES125 / PES125	5130	2070	5130	2070
2	PES125 / 120g Masse / PES125	12000	5090	--	--
3	PES125 / 30g Masse / PES125	--	--	5310	2200
Effekt der Funktionsschicht (2 bzw. 3 minus 4)		6870	3020	180	130

Beispiel 3		Abrieb 7 N Hübe	Abrieb 7 N Hübe
4	PES125 / PES125	5130	--
5	tb 4964	460	--
4+5	erfindungsgemäße Kombination aus 4 und 5	--	>18500
Summe		5590	>18500

Beispiel 4		Abrieb 7 N Hübe	Abrieb 10 N Hübe	Abrieb 7 N Hübe	Abrieb 10 N Hübe
2	PES125 / 120g Masse / PES125	12000	5090	--	--
6	PES60 luftdicht	210	70	--	--
2+6	erfindungsgemäße Kombination aus 2 und 6	--	--	>20000	6890
Summe		12210	5160	>20000	6890

Übersicht abriebfester Muster:

Grundaufbau aus zwei Lagen Polyestergewebe 125 g			
Funktionsschicht		Abrieb 7 N Hübe	Abrieb 10 N Hübe
1	ohne	5130	2070
2	Kaschiermasse 30 g/m <sup>2</sup>	5310	2200
3	Masseauftrag 120 g/m <sup>2</sup>	12000	5090
4	Masseauftrag 260 g/m <sup>2</sup>	>20000	--
5	Malivlies 170 g/m <sup>2</sup>	20520	--
6	Vlies Spunbonded 60 g/m <sup>2</sup>	>20000	6640
7	Polyester luftdicht 60 g/m <sup>2</sup>	>20000	6890
8	MultiKnit	--	>23000
9	PES Schlingenware	>50000	--
andere Lösungen			
10	PES-Geflecht	--	4400
11	PA-Geflecht	--	>50000



**EXHIBIT B**

**TO RULE 131 DECLARATION  
OF THE INVENTORS**

**KULPER ET AL.  
USSN 10/590,124**

RWS Group Ltd, of Europa House, Marsham Way, Gerrards Cross, Buckinghamshire, England, hereby declares that, to the best of its knowledge and belief, the following document, prepared by one of its translators competent in the art and conversant with the English and German languages, is a true and correct translation of the accompanying document in the German language.

Signed this 16th day of November 2010

A handwritten signature in dark ink, appearing to read 'N. T. Simpkin', followed by a horizontal line.

N. T. SIMPKIN

Deputy Managing Director - UK Translation Division

For and on behalf of RWS Group Ltd

Hi Klaus,

Below I have elaborated some examples which clearly show that the effect of the layered construction on abrasion performance is distinctly more than just additive.

The control is purely lamination at 30 g add-on (3), which scarcely absorbs energy on exposure to abrasion, see comparisons (3) and (4). As to the add-on effect, it is found that 4 times the add-on produces 20 to 40 times the abrasion resistance.

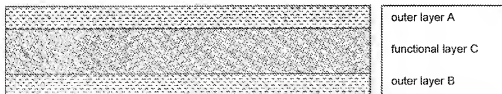
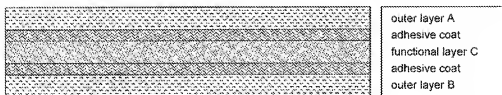
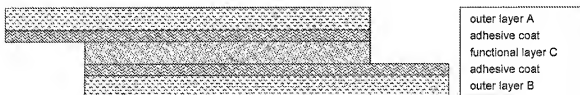
The table below shows views of the functional layer and an overview of the possibilities.

Have a look whether it might not be too detailed.

We should have a quick look on Monday to check that all cases are properly covered.

#### Construction of polyester fabric:

The polyester fabric is woven from standard available filaments having a linear density of 167 dtex. There are 45 ends per cm and 25 picks per cm to make a woven fabric having a basis weight of 125 g and a thickness of 0.2 to 0.25 mm. Breaking strength is 220 N/cm in the warp direction and 170 N/cm in the weft direction with breaking extensions of 32% and 23%, respectively.



Example 1		Abrasion 7 N cycles	Abrasion 10 N cycles	Abrasion 7 N cycles	Abrasion 10 N cycles
1	PES125 / 60 g add-on	1800	880	---	---
1	PES125 / 60 g add-on	1800	880	---	---
2	PES125 / 120 g add-on/PES125	---	---	12000	5090
Total		3600	1760	12000	5090

Example 2		Abrasion 7 N cycles	Abrasion 10 N cycles	Abrasion 7 N cycles	Abrasion 10 N cycles
4	PES125 / PES125	5130	2070	5130	2070
2	PES125 / 120g add-on / PES125	12000	5090	---	---
3	PES125 / 30g add-on / PES125	---	---	5310	2200
Effect of functional layer (2 or 3 minus 4)		6870	3020	180	130

Example 3		Abrasion 7 N cycles	Abrasion 7 N cycles
4	PES125 / PES125	5130	---
5	tb 4964	460	---
4+5	inventive combination of 4 and 5	---	>18500
Total		5590	>18500

Example 4		Abrasion 7 N cycles	Abrasion 10 N cycles	Abrasion 7 N cycles	Abrasion 10 N cycles
2	PES125 / 120g add-on / PES125	12000	5090	---	---
6	PES60 airtight	210	70	---	---
2+6	inventive combination of 2 and 6	---	---	>20000	6890
Total		12210	5160	>20000	6890

Overview of abrasion-resistant samples:

Foundational construction from two plies of 125 g woven polyester fabric			
	Functional layer	Abrasion 7 N cycles	Abrasion 10 N cycles
1	none	5130	2070
2	adhesive add-on 30 g/m <sup>2</sup>	5310	2200
3	add-on 120 g/m <sup>2</sup>	12000	5090
4	add-on 260 g/m <sup>2</sup>	>20000	---
5	Malivlies 170 g/m <sup>2</sup>	20520	---
6	spunbonded 60 g/m <sup>2</sup>	>20000	6640
7	airtight polyester 60 g/m <sup>2</sup>	>20000	6890
8	Multiknit	---	>23000
9	PES loop pile	>50000	---
	other solutions		
10	PES braid	---	4400
11	PA braid	---	>50000

**EXHIBIT C**

**TO RULE 131 DECLARATION  
OF THE INVENTORS**

**KULPER ET AL.  
USSN 10/590,124**

Eigene Dateien ▾ 11-Patente ▾ Hochabriebfest Supersleeve ▾	
Organisieren ▾ Ansichten ▾ Öffnen ▾ Drucken	
Name	Date modified
AW EP 01 956 587 (DE 100 39 932) Klebebänder mit textilem Träger für die Ummantelung vo...	09.03.2006 16:53
AW Stellungnahme Kku 2040121A.msg	22.08.2007 10:45
Beschreibung Abriebschutz.doc	13.02.2004 12:19
EP Nr. 05 740 019.4 Hoch abriebfestes Band- Prüfung .msg	15.08.2007 08:33
EP-Recherche_textileZwischenschicht_Sept05.DOC	20.09.2005 11:49
Gebrauchsmusterabzweigung 20 2005 021 453.1 Hoch abriebfestes Band.rtf	08.05.2008 10:13
Gebrauchsmusterabzweigung 20 2005 021 453.1 Hoch abriebfestes Band für die Bandagieru...	08.05.2008 10:13
Gebrauchsmusterabzweigung aus EP 05 715 732.3 Hoch abriebfestes Band für die Bandagier...	15.01.2008 17:14
Internationale Patentanmeldung PCTEP2005002275.rtf; Hoch abriebfestes Band für die Ban...	23.04.2007 16:26
Laminat_Atrieb.xls	04.02.2005 12:59
PCT-Recherche_Kleberzwischenschicht_Sept05.DOC	20.09.2005 16:08
PCT-Recherche_KleberzwischenschichtII_Okt06.DOC	13.10.2006 07:40
raumdichten supersleeve.xls	19.10.2004 14:53
Supersleeve_Entwurf_Jan04.DOC	03.03.2004 09:51
WG Iesa Sleeve aus aufeinander laminierten Klebebändern.rtf	09.02.2004 08:42
WO200508494A2.pdf	20.09.2005 13:45
WO2005085379A1.pdf	20.09.2005 13:44